UNCLASSIFIED PROCESSING DATE--02DCT70

1/2 032

TITLE--MATERIAL FOR WELDING TITANIUM ALLOYS -U-

AUTHOR-(02)-MORYAKOV, V.F., KUDRYAVTSEV, I.M.

K

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 261,150
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TITANIUM ALLOY, TITANIUM WELDING, METALLURGIC PATENT, METAL POWDER, CALCIUM FLUORIDE, WELDING FLUX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1787 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109748
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 032

CIRC ACCESSION NO--AA0109748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATERIAL FOR WELDING TI ALLOYS WAS USED AS AN ADDITIVE DURING THE WELDING OF ARTICLES OF COMPLEX CONFIGURATION. THIS MATERIAL CONSISTED OF TI POWDER 95-7.5 AND CAF SUB2 2.5-5 WT. PERCENT. A RESIN EQUALS 80-100 WT. PERCENT OF THE DRY MIXT. WAS USED AS A BINDER.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--MATERIAL FOR WELDING TITANIUM ALLOYS -U-

AUTHOR-(02)-MORYAKOV, V.F., KUDRYAVTSEV, I.M.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 261,150
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TITANIUM ALLOY, TITANIUM WELDING, METALLURGIC PATENT, METAL POWDER, CALCIUM FLUORIDE, WELDING FLUX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1797 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109748
UNCLASSIFIED

UNCLASSIFIED

2/2 032 PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AA0109748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATERIAL FOR WELDING TI ALLOYS WAS USED AS AN ADDITIVE DURING THE WELDING OF ARTICLES OF COMPLEX CONFIGURATION. THIS MATERIAL CONSISTED OF TI POWDER 95-97.5 AND CAF SUB2 2.5-5 WT. PERCENT. A RESIN EQUALS 80-100 WT. PERCENT OF THE DRY MIXT. WAS USED AS A BINDER.

UNCLASSIFIED

UDC 669.01:539.43

USSR

KUDRYAVTSEV, I. V., KOLODEZNYY, L. A., TOPOROV, G. V., BURMISTROVA, L. N., Central Scientific Research Institute of Technology and Machinery Manufacture, and TMSI (expansion unknown)

"Effectiveness of the Cold Hardening of Steel with Impact-Cyclic Loading Under Low-Temperature Conditions"

Kiev, Problemy Prochnosti, No 1, Jan 72, pp 84-89

Abstract: Here are presented the results of an investigation of three kinds of steel, with and without hardening by surface plastic deformation, for resistance against impact-fatigue failure at temperatures of +20 and -50° C. The spread of fatigue cracks was studied in order to provide information on the mechanism of fatigue-impact failure. It is shown that the effect imparted by cold hardening becomes more pronounced as the stress level decreases. Decreasing the test temperature increases the resistance to fatigue failure, but the incrementation of longevity is considerably greater for hardened specimens. Tests of the same steels for impact viscosity at various temperatures showed that the presence of hardening had an adverse affect only if the cold-hardened layer is quite deep. Two tables, 3 figures, 22 referen ces.

1/1

USSR

UDC: 539.385

KUDRYAVTSEV, I. V. and SAVVINA, N. M., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Effect of the Size Factor and Forced Fit on the Cyclic Strength of Unburnished and Roller-Burnished Specimens From Titanium Alloy With Aluminum"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 81-86

Translation: The article offers fatigue test data (based on 10 million cycles) on titanium alloy specimens with effective area diameters of 12, 20, 40, and 180 mm. The tests included smooth specimens and specimens with bushings force-fitted on both unburnished and roller-burnished surfaces. (3 illustrations, 3 bibliographic references; summary).

1/1

USSR

UDC: 669.295:620.178.382

KUDRYAVTSEV, I. V. and VAYNSHTEYN, V. G., Central Scientific Research Institute of Heavy Machinery (TSNIITMASH)

"Effect of Surface Strain Hardening on the Fatigue Limits of Titanium Alloys in Low-Cycle Loading"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 12, 1971, pp 44-46

Abstract: This paper concerns the study of the effect of surface hardening of VT3-1 titanium alloy on fatigue strength in low-cycle loading. The testing procedure is detailed including the description of the test specimens, type of treatment, and data. Analysis of the fractures of the tested specimens permits their classification into two groups: fatigue-type fractures and those with a crystalline structure resembling brittle failure. The first type of fracture was observed in all specimens with stress concentrators. The second type was characteristic for smooth specimens; the specimens displayed no necking. The test shows that surface hardening effectively increases the fatigue strength of parts from VT3-1 titanium

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USSR
KUDRYAVTSEV, I. V., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 12, 1971, pp 44-46

alloy in low-cycle loading, specifically those weakened by stress concentrators. Peening stress concentrations significantly increases the fatigue limit at loading conforming to the yield point of the part and may eliminate completely the adverse effects of the concentrator. Hardening the concentrator area without hardening the notch bottom was of little significance. (1 table, 4 bibliographic references).

2/2

USSR

UDC 621.791:620.178.3.004.64

KUDRYAVTSEV, I. V., Doctor of Technical Sciences, BRINBERG, I. L., Candidate of Technical Sciences, and ANDRENKO, V. M., Engineer

"Influence of Technology of Attachment of Plates and Repair of Defects on the Fatigue Strength of 16GNMA Steel"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 22-24

Abstract: A study was made to determine the fatigue resistance of boiler steel in connection with the varying technologies of welding of separation elements and correction of defects on the internal walls of the high-parameter drums and boilers. The steel tested had the following chemical composition: 0.17% C, 1.04% Mn, 0.36% Si, 0.05% Cr, 1.1% Ni, 0.47% Mo, 0.16% Cu, 0.05% V, 0.012% P, and 0.013% S. Fatigue resistance was determined using specimens imitating the welding of separator elements and repair of cracks. It was determined that the attachment of plates to 115-mm-thick specimens decreases their fatigue strength by 50% in comparison with smooth specimens. The method of welding the plates (one-sided or two-sided) has no marked effect on fatigue strength. Cracks are easier to locate when two-sided welding is used. Points where cracks

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USSR

KUDRYAVTSEV, I. V., et al, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 22-24

are repaired cause no decrease in fatigue resistance if carefully finished. The fatigue resistance of 50-mm-thick specimens with unrepaired dents is 83% of the endurance limit of smooth specimens. The fatigue resistance of specimens with dents hardened by stamping is close to the fatigue resistance of smooth specimens.

2/2

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--CONTEMPORARY STATE OF THE ART AND PROSPECTS FOR THE DEVELOPMENT OF METHODS FOR STRENGTHENING AND INCREASING THE DURABILITY OF MACHINE PARTS

AUTHOR--KLOKYAVTSEV, I.V.

K

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK MASHINOSTROYENIYA, NO 1, 1970, PP 9-13

DATE PUBLISHED--------70

31/5
36

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ENGINEERING MACHINERY, METAL SURFACE HARDENING, IMPACT STRESS, PLASTIC DEFORMATION, STEEL, METAL ALLOY, METAL CUTTING MACHINE TOOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1979/0180 STEP NO--UR/0122/70/000/001/0009/0013

CIRC ACCESSION NO--APO046865
UNCLASSIFIED

Acc. Nr.: AP0046865 Ref. Code: URO122

USSR UDC 621.787.313

KUDRYAVTSEV, I. V., Professor, D-r of Technical Sciences

"Contemporary State of the Art and Prospects for the Development of Methods for Strengthening and Increasing the Durability of Machine Parts by Surface Plastic Deformation"

Moscow, Vestnik Machinostroyeniya, No 1, 1970, pp 9-13

Abstract: This article describes the present day achievements and future trends in the development of methods for increasing the strength and durability of various machine parts by way of surface plastic deformation. Various methods and devices by which this plastic deformation of surfaces is obtained are briefly reviewed. The advantages of this mechanical surfaces treatment for strengthing machine parts, subjected to alternating loads, welded parts, crankshafts and other shafts with small chamfer radius, parts subjected to friction etc, are stressed. Data are presented on application of these methods to various metals,

1/2 Reel/Frame 19790180 18

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steels and alloys, and also on different results obtained on different metals, parts and in particular on cutting tools of certain alloys. The author emphasizes the great importance of research in this field, and states that a great number of laboratories of various Institutes and plants, and more than one thousand of scientists and engineering specialists are doing research in this field. Substantial achievements were obtained in the study of the process, in the equipment, in the selection of optimal working conditions and in establishing the efficiency of various conditions. Future theoretical and experimental investigations in the field of surface strengthening are emphasized, are certain of them are enumerated. Original article has 2 figures and 1 table.

2/2 19790181 ai

Acc. Nr.: AP0046868 Ref. Code: URO122

USSR UDC 621.224.253.67:621.787.4

~~KUDRYAVTSEV~~, I. V., Professor, Director of Technical Sciences, SCHEGOLEV, G. S., Professor and RYMYNOVA, E. V., Engineer

"Increasing the Durability of Components of Powerful Hydraulic Turbine Wheels"

Moscow, Vestnik Mashinostroyneiya, No 1, 1970, pp 22-25

Abstract: This article describes a series of tests conducted jointly by the Central Scientific-Research Institute of Technology and Mechanical Engineering (TsNIITMASH) and by Leningrad Mashine Tool Plant (LMZ) on samples made of 25KhMF steel, with the purpose of evaluating the increase in durability of components of the blade adjustment mechanism, for powerful hydraulic Turbine wheels, obtained by surface strengthening of chamfers by means of vibrating roller. Data are presented on the shape of samples, their heat treatment, the chamfer radius, the number of impacts per minute, the impact energy, and etc. A schematic diagram of

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the device used for penumatic hammering of chamfers, and also a photograph of the instrument for measuring the groove depth after hammering process, are given. The results of the fatigue tests on various samples with different chamfer radius presented in a table and in graphs, are discussed. The effect of surface strengthening, of scale factor, and of chamfer radius on the endurance limit is analyzed. The method described here was used for increasing the durability of components of powerful hydraulic turbines of Verkhne-Tulomskoy GES, and is being a compulsory shop practice at LMZ. Original article has 5 figures, 3 tables and 3 formulas.

2/2

87

19790189

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--FATIGUE TEST FOR BOILER STEEL IN AN ASYMMETRIC LOADING CYCLE -U-

AUTHOR-(04)-KUDRYAVTSEV, I.V., BURNISTROVA, L.N., MANINOV, A.S., SHKANOV, I.N.

COUNTRY OF INFO--USSR

SOURCE--PROBL. PROCH. 1970, (2), 77-80

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--CRACK PROPAGATION, FATIGUE STRENGTH, TEST METHOD, STEAM BOILER/(U)166NM STEEL, (U)22K STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1444 STEP NO--UR/3663/70/000/002/0077/0080

CIRC ACCESSION NO--AP0135115

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FATIGUE LIMIT OF STEELS 16GNM WITH A RISE IN THE MEAN LOADING CYCLE FALLS TO A GREATER EXTENT THAN THAT OF STEEL 22K. THE ESTABLISHED HIGH SENSITIVITY OF THE FORMER STEEL IS APPARENTLY DUE TO A GREATER TENDENCY TO CRACK FORMATION DURING OPERATION OF THE BOILERS. WITH A FALL IN THE YIELD POINT AND STRENGTH LIMIT IN CERTAIN STEEL MELTS OF THE TYPE 22K THERE IS A FALL IN THEIR FATIGUE STRENGTH OVER THE ENTIRE RANGE OF MEAN LOADING CYCLES. AN INCREASE IN THE STRENGTH AND YIELD LIMITS OF STEEL 16GNM DOES NOT INCREASE THE FATIGUE LIMIT DURING ASYM. LOADING IN BOILING WATER. THE USE IN FACTORY AND LAB. PRACTICE OF A DEVELOPED TEST METHOD FOR RAPIDLY CHECKING BOILER STEELS UNDER THESE CONDITIONS APPROXS. THE TEST TO REAL CONDITIONS. IT FACILITATES COMPARISON OF DIFFERENT BOILER STEELS FROM THEIR SENSITIVITY TO A SYM. LOADING. SUCH TESTS CAN BE RECOMMENDED FOR MAKING COMPONENTS FROM MATERIALS THAT ARE LESS SENSITIVE TO A SYM. LOADING IN BOILING WATER, WHICH IMPROVES BOILER OPERATION.

FACILITY: KAZAN. AVIATS. INST., KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 621.3.-035.3:665.31.537.311.3

KUDRYAVTSEV, L. A., DMITRIYEVA, L. M., FEDOROV, A. P., and DANILKIN, V. I.

"Some Properties of Ceramic Ion Exchange Membranes"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 1, Jan 72, pp 30-33

Abstract: A study was carried out on the utilization of ceramic membranes with ionic conductivity in vacuum electrochemical processes. These materials were found to exhibit high mechanical strength as well as thermal and chemical stability. Ceramic membranes which exhibit ionic conductivity are based on solid porcelain to which minerals and granite pegmatites containing alkaline oxides were added: a) porcelain mass + spodumene with lithium conductivity; b) porcelain mass - synnirite with potassium conductivity; and c) porcelain mass - granite pegmatites with sodium conductivity. In spite of the fact that ceramic materials (with higher content of alkaline oxides) exhibit lower electroconductivity than glasses, they can be used in electrochemical processes, especially at elevated temperatures where the use of glass is very limited. Ionic transport across the ceramic membranes obeys the Ohm law, its function against the voltage plot is linear.

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USSR UDC: 621.378.325:532.57

DOMARATSKIY, A. N., KUDRYAVTSEV, M. B., SOBOLEV, V. S., SHKOYLOV, N. F., and YURLOV, Yu. I.

"Investigating the Effect of Scattered Particle Concentration on the Correlation Time of the Laser Doppler Velocity Measurement Signal"

Novosibirsk, Avtometriya, No 5, 1972, pp 122-125

Abstract: The experimental investigation of the effect of scattered particle concentration on the change in the statistical characteristics of a Doppler signal is described. It was conducted for the change in the maximum correlation time of the Doppler signal correlation function. A diagram of the experimental apparatus, involving a single laser type LG-75, operating in the TEM_{00} mode, is given. The single beam from the laser is split in two by a dividing plate, with the diameters of each beam measuring 0.02 and 0.1 cm, and both are then converged on a bulb of double-distilled water. The result is the formation of an interference pattern. It is concluded from the experiment that the correlation time and the correlation function of the Doppler signal are dependent on the change in scattered particle concentration if there

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USSR UDC: 621.378.525:532.57

DOMARATSKIY, A. N., et al, Avtometriya, No 5, 1972, pp 122-125

are fewer than 10 particles in the scattering space and are independent of the change if there are, on the average, 15-70 scattered particles.

c/c

USSR

UDC 669.187.26

KUDRYAVTSEV, M. M., VOINOV, S. G., VERKHOVTSEV, E. V., NEMTSYUK, T. P., and SAFONOV, V. L.

"The Quality of Structural Steel of Different Smelting Methods in the Sorted Billet and After Electroslag Remelting"

Abstract: A comparative investigation was made of the properties of 30KhGSA, 40KhNMA, and 18Kh2N4VA structural steels smelted according to five variants: in basic 40-ton and 120-ton open-hearth furnaces (1&2); in a basic 120-ton open-hearth furnace with steel processed in the ladle by synthetic lime-aluminaceous slag (3); in a 20-ton arc furnace with basic lining (4), and in a 120-ton open-hearth furnace with intermediate production and subsequent deoxidation and alloying with liquid ligature alloy and simultaneous processing with synthetic slag in the ladle. Properties of the steels, content of harmful impurities, contamination by nonmetallic inclusions, and mechanical characteristics are discussed. Heat treatment of open-hearth steel processed by synthetic slags in the ladle or alloyed with liquid ligature makes it possible to use the metal for electroslag remelting. In this case, the quality of the metal of electroslag remelting does not worsen and the net cost decreases substantially. Three figures, three tables, seven bibliographic references.

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USSR

UDC 576.851.48.095.38:576.851.315

POKROVSKAYA, M. P., EPSHTEYN-LITVAK, R. V., VIL'SHANSKAYA, F. L., RAKHMANOVA, N.G. POSPELOVA, V. V., LUDRYAVTSEV, N. G., SIL'VERSTOVA, T. N., KALININA, A. M., and SYADUK, V. F., Moscow Institute of Epidemiology and Moscow Municipal Sanitary Epidemiological Station

"In vitro Antagonistic Activity of E. coli (Strain M-17) and B. bifidum (Strain 1) Against El Tor Cholera Vibrios"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 54-59

Abstract: The antagonistic activity of E. coli (strain M-17) and B. bifidum (strain 1) against 11 El Tor cholera vibrio strains (Inaba serotype 6 and Ogawa serotype 5) was studied in mixed cultures in vitro. During the first 6 hours of combined cultivation of E. coli and a cholera vibrio strain both microbial species grew, but the number of live vibrios began to decrease after 24 hours and after 48 hours almost all were dead. B bifidum had a similar inhibiting effect on vibrio growth. In the presence of both antagonistic strains, all the vibrios died within 48 hours without reproducing in the initial period of cultivation. It is suggested that the antagonistic activity of the two strains under study might be duplicated in an intestinal biocenosis and that a preparation made from these microorganisms (a combination of colibacterin and

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USSR

POKROVSKAYA, M. P., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 54-59

bifidumbacterin) should, in principle, be an effective means of treating vibrio carriers and correcting the change in intestinal microflora observed in cholera.

2/2

USSR

UDC: 621.357.7

BOGOSLOVSKIY, V. V., TYUTINA, K. M., MUZYCHENKO, L. A., KUDRYAVTSEV, N. T.

"Optimization of the Process of Electrodeposition of Nickel-Antimony Alloy"

Moscow, Zashchita Metallov, Vol 9, No 3, Jul-Aug 73, pp 455-456.

Abstract: An experimental-statistical method is used to construct a mathematical model of the process of electrodeposition of shiney nickel-antimony alloy deposits with minimum internal stress. The optimization parameters selected were the diffuse-scattered light intensity and the internal stresses in the alloy, expressed in ocular microscope divisions. The experimental data, following statistical checking, were used to produce two equations to calculate the conditions of deposition of the nickel-antimony deposits with minimum internal stresses: $NiCl_2 \cdot 6H_2o$ 59 g/l; SbF_3 3 g/l; NH_4Cl 21 g/l; NH_4F 41 g/l; D_c = 0.5-6 a/dm^2; pH 4.5; temperature 70°; antimony anodes.

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USSR

UDC 621.357.7:669.66(088.8)

KUDRYAVTSEV, N. T., KRUGLIKOV, S. S., NECHAYEV, YE. A., MEDVEDEV, G. I., IZMAYLOVA, T. M.

"Method of Electrodeposition of Tin"

USSR Author's Certificate No 316750, filed 11 Dec 70, published 9 Dec 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L326P)

Translation: A procedure has been patented for electrodeposition of Sn. The procedure is distinguished by the fact that in order to obtain bright smooth deposits of Sn, 1,4-butendiol is introduced into the electrolyte, and the process takes place at 18-25°, D_c 1-5 amps/dm^2 and with mixing of the electrolyte. The electrolyte contains 25-60 grams/liter of $SnSO_4$, 80-100 grams/liter of H_2SO_4, 10-15 grams/liter of orthocresol, 3-80 mℓ/liter of 40% 1,4-butenediol, and 1-2 grams/liter of joiner's glue. Example. In an electrolyte containing 50 grams/liter of $SnSO_4$, 90 grams/liter of H_2SO_4, 10 grams/liter of orthocresol, 30 mℓ/liter of 40% 1,4-butenediol and 1 gram/liter of joiner's glue, the process takes place with agitation at a temperature of 18-25° and D_c 1-5 amps/dm^2. The films obtained have a mirror finish with a high degree of smoothness, 1.0-1.1.

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USSR

UDC 669.24'6.018.9(088.8)

KUDRYAVTSEV, N. T., TYUTINA, K. M., KOSMODAMIANSKAYA, L. V.

"Method of Electrolytic Deposition of Tin-Nickel Alloy"

USSR Author's Certificate No 310951, filed 26 Mar 70, published 1 Oct 71 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G318P)

Translation: A procedure is proposed for electrolytic deposition of Sn-Ni alloy and an electrolyte containing $NiCl_2$, $SnCl_2$, NH_4F. It is distinguished by the fact that in order to increase the admissible D to obtain light bright deposition of the alloy, chloral hydrate is introduced into the electrolyte with the following content of the components (in g/ℓ): $NiCl_2$ 300-350, $SnCl_2$ 45-50, NH_4F 60-65, chloralhydrate 0.5-2.0. The process is carried out at a pH of 4-4.5, a temperature of 52-55°, and D_c = 0.5-4 a/decimeter^2. The anodes are nickel, and $S_A:S_C$ = 2:1. The alloyed deposits obtained contain 34-38% Ni.

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USSR UDC 669.76'6.018.9(088.8)

KUDRYAVTSEV, N. T., TYUTINA, K. M., GAVRILINA, L. P., and GAVRILIN, O. N., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev

"Method of Electrolytic Deposition of Tin-Bismuth Alloy"

USSR Authors' Certificate No 305208, Cl. C 23 b 5/38, filed 3 Feb 70, published 13 Jul 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G171P)

Translation: The method of electrolytic deposition of Sn-Bi alloy from an electrolyte containing $SnSO_4$, $Bi(NO_3)_2$, H_2SO_4 is unique in that, in order to raise the permissible current density limit and increase electrolyte stability, preparation OS-20 is put into the electrolyte in the following ratio of components (in g/liter): $SnSO_4$ 50-55, $Bi(NO_3)_2$ 0.5-0.8, H_2SO_4 95-105, preparation OS-20 2-5, and the process is carried on at D = 0.5-2 a/sq decimeter and temperature of 20-25°.

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USSR

UDC: 621.793.3

GOLOVCHANSKAYA, [illegible] G., GAVRILINA, L. P., SHIRKOVA, T. A., and [illegible]SHEV, N. T., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev

"Chemical Nickel Plating of MA-8 Magnesium Alloy"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 614-615

Abstract: A strong cohesion of nickel deposits (5-7 microns) with the base metal is obtained after etching the MA-8 alloy in concentrated acetic acid for 0.5 - 1 minute followed by treatment with a sodium pyrophosphate solution (70 g/l) at 70°C for 1 hour. The fluorine ion has been known to inhibit magnesium corrosion. This study has shown that ammonium fluoride at pH 8 increases the stability of the nickel plating solution; at 60-70°C the surface of the solution becomes covered with a dense deposit of metallic nickel. The buffer properties of the solution will be improved by substituting ammonium bifluoride for ammonium fluoride. In 15 minutes the maximum thickness of the nickel deposit will be 5-6 microns. A longer plating duration will restore the nickel in the solution. For the chemical plating of MA-8 alloy this study suggests the following for[illegible]

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USSR

GOLOVCHANSKAYA, R. G., et al, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 614-615

tion of the solution (g/l): nickel sulfate, 30; sodium hypophosphite, 25; ammonium bifluoride, 15; glycine, 15; pH, 8; temperature, 60-70°C; deposition rate, 10 microns/hr. Glycine and ammonium bifluoride are dissolved in water, and nickel sulfate and sodium hypophosphite are then added. A 20% NaOH solution is added gradually to pH 8.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SILVER ELECTROPLATING -U-

AUTHOR-(04)-KUDRYAVTSEV, N.T., NECHAYEV, YE.A., SOLOVEV, G.S., ATAMANCHUK, A.V.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,574
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970 47(6)
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CHEMICAL PATENT, ELECTROPLATING, SILVER, METAL PLATING, CHEMICAL COMPOSITION, ELECTROLYTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1996 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0115795

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AA0115795

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTROLYTIC AG COATING TAKES PLACT AT 20-5DFGREES AND 0.1-2.5 A-DM PRIME2 IN AN ELECTROLYTE WITH THE FOLLOWING CONCN.: AG SALT (METALLIC) 20-45, KCN 60-90, K SUB2 CO SUB3 20-80, AND NA 2,3,DITHIOLPROPANE SULFONATE 0.005-0.05 G-L.

FACILITY: MENDELEEV, D. I., CHEMICAL TECHNOLOGICAL INSTITUTE, MOSCOW.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BEHAVIOR OF THIOUREA IN CYANIDE ELECTROLYTES FOR SILVER PLATING -U-

AUTHOR-(03)-SOLOVYEV, G.S., NECHAYEV, E.A., KUDRYAVTSEV, N.T.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(4), 496-500

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--METAL PLATING, SILVER, ELECTROLYTE, THIOUREA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1156 STEP NO--UR/0364/70/006/004/0496/0500

CIRC ACCESSION NO--AP0121715

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201620011-6"

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0121715
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STRUCTURAL, ELECTROCHEM., AND RADIOCHEM. STUDIES WERE PERFORMED ON THE BEHAVIOR OF THIOUREA DURING AG PLATING AT 25DEGREES FROM CYANIDE SOLNS. CONTG. AG 46, KCN (FREE) 26, K SUB2 CO SUB3 46 G-L. FROM THE CHEM. ANAL. AND RADIOCHEM. MEASUREMENTS, THIOUREA WAS FOUND TO BE REDUCED DURING AG DEPOSITION TO EVOLVE H AND S PRIME2 NEGATIVE. THE BRIGHTENING EFFECT OF THIOUREA WAS DUE TO ITS ADSORPTION BUT NOT THE ADSORPTION OF ITS REDN. PRODUCTS. FROM THE DOUBLE LAYER CAPACITY DATA, THE MAX. VALUE OF THE PLATE BRIGHTNESS OCCURRED UNDER CONDITIONS THAT CORRESPONDED TO A MAX. SURFACE COVERAGE BY THIOUREA OF SIMILAR TO 1. FACILITY: MOSK. KHIM. TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.357.7

KUDRYAVTSEV, V. P., and SOLOVCHANSKAYA, R. G., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev.

"Electrolytic Deposition of Titanium Alloys"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 451-453.

Abstract: Earlier research indicates that metallic titanium alone or in combination with other metals cannot be deposited on a cathode from aqueous solution. The present study attempts to demonstrate that titanium can be deposited under specific conditions. A major difficult is the fact that titanium, which forms ions of different valance, may also appear in the solution in the form of various modifications, for example in acid solutions -- in the form of violet or green modifications. Unlike earlier research, this study made use of pure metallic VT-0 and VT-1 titanium. The electrolytic deposition of titanium on the cathode of another metal depends on promoting the discharge of titanium ions through the formation of alloys with the cathode material. In the course of the electrolysis, the titanium concentration in the surface layer increases and, as a result, the current yield of the metal drops and after saturation of the layer with titanium, the deposition of the latter ceases. The maximum thickness of such deposits is 3--4 microns. As proof that titanium can actually be

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USSR

KUDRYAVTSEV, N. T., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 481-482

deposited on a cathode of another metal, the study offers data on 1) the chemical analysis of the solution used to remove the deposit from the cathode (the cupferron method was used), and 2) x-ray diffraction data on the surface of copper after electrolytic deposition of titanium on it. The combined deposition of titanium with metals of the iron group yielded deposits of the corresponding alloys of Fe-Ti(Ti=5-9%); Ni-Ti(Ti=4-6%) and Co-Ti(Ti=4-10%). The new procedure of electrolytic deposition of titanium and its alloys from aqueous solutions was tested and effectively utilized at several establishments.

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USSR

UDC: 681.327

ATOVM'YAN, A. E., KUDRYAVTSEV, O. M., LITVAN, A. B., MALOVICHKO, V. V., MUSATOV, I. F., PUKOV, N. P., YAROSHEVSKIY, I. D.

"A Multiple-Reel Tape Transport Mechanism for Memory Devices"

USSR Author's Certificate No 288051, filed 5 Aug 69, published 30 Apr 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B344 P)

Translation: Multiple-reel tape transport mechanisms for memory units are known which contain a reel casette, reel drive spindles, and a drive for moving the casette. A distinguishing feature of the described device is arrangement of the reels in the casette by pairs in two groups coaxially with each other and with their drive spindles; and the casette contains a bracket with guides for displacing the casette along the axis of the spindles, which are equipped with releasable cartridges containing cams for locating the reels with internal tapers. Fastened to the reels are spring-loaded gear sectors which engage in the initial state with geared rims fastened on the casette housing. This speeds up data sampling and improves the reliability of the device. Two illustrations.

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USSR

UDC: 621.165.62-57

KUDRYAVTSEV, P. I., Candidate of Technical Sciences, BELOLIPETSKIY, Yu. P., Candidate of Technical Sciences, Central Scientific Research Institute of Machine Technology

"Effect of Turbine Starts and Stops on the Fatigue Strength Characteristics of Blade Materials"

Moscow, Teploenergetika, No 5, May 73, pp 59-61

Abstract: An investigation is made of the influence which the centrifugal tensile force loading accompanying starting and stopping of turbines has on the fatigue properties of materials for blading. It is found that the sensitivity of VTZ-1 alloy to starting and stopping conditions is essentially the same as that of the widely used 15Kh11MF blading steel. The fatigue strength of this alloy under conditions typical for operation of turbine blades does not fall below 11 kg/mm^2 (as determined on high-quality bar stock loaded to the maximum number of turbine starts and stops -- 1000 cycles). Cyclic testing of VTZ-1 alloy specimens on a 1000-cycle base increased their fatigue strength by approximately 10%. The same type of loading on notched specimens reduced fatigue strength by 22%. This result

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USSR

KUDRYAVTSEV, P. I., BELOLIPETSKIY, Yu. P., Teploenergetika, No 5, May 73, pp 59-61

shows that low-frequency cyclic loading toughens the material while simultaneously increasing its sensitivity to stress concentration. Analogous stress concentration tests on 15Kh11MF steel caused a reduction in fatigue strength of 20%. Cyclic loading for 500 cycles caused no appreciable change in fatigue limit. These results should be considered when determining the strength properties of forgings for turbine baldes.

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1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SCALE EFFECT IN THE LOW CYCLE FATIGUE OF MATERIALS -U-

AUTHOR--KUDRYAVTSEV, P.I.

K

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 331-334

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FATIGUE TEST, MANGANESE STEEL, STRESS CONCENTRATION, ERROR ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0303 STEP NO--UR/0032/70/036/003/0331/0334

CIRC ACCESSION NO--AP0129535

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129535

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SCALE EFFECTS TENDING TO DISTORT THE RESULTS OF LOW CYCLE FATIGUE TESTS ON METALS AND OTHER MATERIALS ARE DISCUSSED FROM A PRACTICAL POINT OF VIEW. THE DISCUSSION IS BASED ON TESTS CARRIED OUT WITH MN STEEL SAMPLES OF A WIDE RANGE OF SIZES, IN WHICH THE DEFLECTIONS UNDER FATIGUE LOADING WERE CORRELATED WITH THE ABS. DIMENSIONS OF THE SAMPLES AND THE PRESENCE OR ABSENCE OF LOCAL STRESS RAISERS. A GENERAL SCHEME RELATING THE LIMITING STRESSES AND STRAINS TO THE NUMBER OF CYCLES FOR SAMPLES OF VARIOUS SIZES IS PROPOSED.

UNCLASSIFIED

KUDRYAVTSEVA, R.V.

IV-8. STUDY OF THE FORMATION OF THE LEAD SULFIDE FILM STRUCTURE ON SUBSTRATES OF ROCK SALT SUBJECTED TO BOMBARDMENT BY H_2^+, Ar^+, K^+ IONS

[Article by Yu. I. Zorin, R. V. Kudryavtseva, M. A. Mochalova, P. V. Pavlov, S. A. Smolikov, Gor'kiy, Gor'kiy Research Physicotechnical Institute under Gor'kiy University; Sensitive, III Symposium po fizicheskim osnovam i tekhnike poluprovodnikovykh fotokatodov i fotosloyev, Novosibirsk, 27-29 June, 1972, p 49]

There are various opinions regarding the effect of substrate defects on the nature of the orientation and the structure of continuous films. Therefore, discussing the growth flaws of the films on the substrates with accumulated defects is of scientific and practical interest.

In this paper the methods of electron diffraction and electron microscopy were used to study the laws of the formation of thin films of lead sulfide obtained by condensation in a vacuum on the order of $5 \cdot 10^{-5}$ torr on rock salt cleavages irradiated in advance by H_2^+, Ar^+, K^+ ions in equal doses from $5 \cdot 10^{14}$ to 10^{15} ions/cm^2).

It was established that:

1) Irradiation of the NaCl substrate with H_2^+, Ar^+ and K^+ ions leads to the fact that the film formation proceeds much more rapidly than on the control substrate, that is, the formation process is shifted in the direction of smaller thicknesses.

2) The magnitude of the critical thicknesses for which one speaks about the transition of the epitaxial growth of the film to disturbed; irradiation by K^+ ions with doses of another taken place is less the greater the mass of the ions and the irradiation dose.

3) When determining the irradiation dose, depending on the type of ion, on the order of 10^{15} ions/cm^2 leads to the formation of polycrystalline films.

4) In the films grown on irradiated substrates, defects of the crystal structure occur which are the same as on the control substrates (dislocations, dislocation grids, growth configurations), but with higher concentration.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT7C

TITLE--ACETYLENIC COMPOUNDS IN AN IONIC HYDROGENATION REACTION -U-

AUTHOR-(03)-ZDANOVICH, V.I., KUDRYAVTSEV, R.V., KURSANOV, D.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 472-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETYLENE, HYDROGENATION, ORGANOSILICON COMPOUND, BENZENE DERIVATIVE, METHYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0850 STEP NO--UR/0062/70/000/002/0472/0473

CIRC ACCESSION NO--AP0119754

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119754

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGENATION OF A SUBSTITUTED ACETYLENES WITH ET SUB3 SIH-CF SUB3 CO SUB2 H OVER 3-4 DAYS AT ROOM TEMP. GAVE THE FOLLOWING PERCENT YIELDS OF PRODUCTS OF COMPLETE HYDROGENATION OF THE TRIPLE BOND: PHC: CH30; P-MEC SUB6 H SUB4 C: CH 21; P MEOC SUB6 H SUB4 C: CH 20; PHC: CPH 3; PHC: CME 7; BUC: CH 0; ETC: CET 0; AND ISO PRC: CH 5PERCENT. THUS THE REACTION FUNCTIONS ONLY FOR ACETYLENES WITH A FREE CH TERMINATION, WITH A TRIPLE BOND ACTIVATED BY AN AUTOMATIC RING. FACILITY: INST. LEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

KUDRYAVTSEV, V. A., LEVIN, Ye. M., Leningrad Institute of Nuclear Physics, Soviet Academy of Sciences

"Polarization of Particles in Inclusive Reactions"

Moscow, Yadernaya Fizika, Vol 18, No 2, Aug 73, pp 451-463

Abstract: The paper discusses polarization phenomena in inclusive reactions $a+b \to c+\ldots$, for the case in which particles a,b,c have arbitrary spin. On the basis of the formalism of invariant vertices of interaction of reggeons with particles of any spin, specific predictions are made for some polarization phenomena in the central reggeon region, the three-reggeon limit, and the fragmentation region. It is found that in inclusive reactions the probabilities for production of particles with differently directed spins are not identical even in the region of pionization. (For instance, the number of π-mesons from ρ-decay depends on the angle between the plane of the decay and the plane of the reaction.) Experiments with polarized targets can isolate the region of target fragmentation, since it is only in this region that the quantity $f \equiv (\sigma_- - \sigma_+)/(\sigma_+ + \sigma_-)$ (subscripts $\pm$ correspond to nucleon spins) differs from zero, although estimates show

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USSR

KUDRYAVTSEV, V. A., LEVIN, Ye. M., Yadernaya Fizika, Vol 18, No 2, Aug 73, pp 451-463

that the difference is not very great (~0.1-0.2). The authors thank M. G. Ryskin for useful discussion of the results of the work.

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USSR UDC: 621.397.61

SIDORKIN, N. A., MAKAROV, Yu. S., MAYOROV, V. N., ZAYTSEV, G. N., KUDRYAVTSEV, V. A.

"A Stereoscopic Television Camera"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 3, Jan 71, Author's Certificate No 291377, Division H, filed 31 Mar 69, published 6 Jan 71, p 162

Translation: This Author's Certificate introduces a stereoscopic television camera for inspection of wells, pipelines, etc. The device contains two television transmitting tubes, scanning devices, an optical system containing two identical reflecting truncated cones located on a single optical axis with the objective lenses, and a receiver. As a distinguishing feature of the patent, the unit is designed for more detailed inspection of individual sections of the surrounding space. Between each of the reflecting truncated cones and the transmitting camera lens is a flat mirror with a hinged device set at an angle to the optical axis of the objective lenses and connected by a rod and speed reducer to the focusing system of the objective lenses. The hinged device of the mirror is connected to an electrical interlock system which is coupled to the inverse stage of the scanning device.

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1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PREDICTIONS FOR THE POLARIZATION OF FINITE PARTICLES IN ELASTIC AND INELASTIC PROCESSES AT HIGH ENERGIES -U-

AUTHOR-(03)-KUDRYAVTSEV, V.A., LEVIN, YE.M., SHCHIPAKIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(4), 858-69

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HIGH ENERGY PARTICLE, REGGE POLE, ELASTIC SCATTERING, INELASTIC SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1071 STEP NO--UR/0367/70/011/004/0858/0869

CIRC ACCESSION NO--AP0136491

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136491

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW IS GIVEN OF POLARIZATION PROPERTIES OF FINITE PARTICLES IN ELASTIC AND INELASTIC PROCESSES AT HIGH ENERGIES. THESE PROPERTIES ARE DUE TO THE CONTRIBUTION OF VACUUM BRANCH POINTS AND TO THE CONTRIBUTION OF THE CONSPIRING REGGE POLE.

FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

UDC 51

USSR

KUDRYAVTSEV V. B., KUDRYAVTSEV, VIT, B.

"Prospeciveness of Populated Areas"

V sb. Issled. operatsiy. Modeli, sistemy resheniya. Vyp. 3 (Operations Research. Models, Systems, Decisions. Vyp. 3) -- collection of works), Moscow, 1972, pp 34-47 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V537)

Translation: A study was made of the problem of estimating the prospectiveness in industrial respects of populated areas. A set of settlements is isolated, and a defined order of them is postulated with respect to exhibition of the attribute of being prospective in industrial respects. In order to obtain the ordering on the basis of the understanding of the test, a numerical measure is introduced which is extended to the entire settlement of the investigated class, and which numerically characterizes the degree of exhibition of the investigated attribute by the settlement. The calculations were performed for the settlements of the Lithuanian SSR.

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USSR

UDC 577.4

KUDRYAVTSEV, V. B.

"Properties of S-Systems of Functions of k-Valued Logic"

V sb. Diskretn. analiz (Digital Analysis — collection of works), vyp. 19, Novosibirsk, 1971, pp 15-47 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V397)

No abstract

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USSR

UDC: 621.317.7.087.92-932

LYSENKO, A. P., KUDRYAVTSEV, V. B., RUMYANTSEV, B. I., KUDRYAVTSEV, F. I.

"A Method of Converting Alternating Harmonic and Square Voltages and Currents to Frequency"

USSR Author's Certificate No 252738, filed 26 Feb 68, published 11 Feb 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A168 P)

Translation: This Author's Certificate introduces a voltage-to-frequency converter which utilizes modulation of the spectral characteristics of masers. A peculiarity of optical masers (which are based on use of the phenomenon of optical double resonance in alkali metal vapors) is asymmetry of the resonance line, which makes it possible to convert and measure small and ultrasmall alternating voltages and currents with high precision. It is known that the frequency spectrum emitted by a spin system has a finite width. This is why quantum and nuclear devices such as quantum magnetometers with double optical resonance may have several distinct resonance frequencies, depending on the direction and magnitude of the vector of magnetic field intensity. To improve sensitivity and provide for preadjustment to the maximum spectral density of the resonance curve, it is proposed that a method be used which involves

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LYSENKO, A. P. et al., USSR Author's Certificate No 258738

correcting the level of the constant component of the magnetic field in the quantum magnetometer zone or phase in the feedback circuit. In this regard, the level of the voltage to be converted may be considerably below the cutoff voltage of the best semiconductor rectifiers. One illustration. V. M.

2/2

USSR

UDC 51.621.391

BIRYUKOVA, L. A., KUDRYAVTSEV, V. B.

"The Completeness of Functions with Delays"

Probl. Kibernetiki [Problems of Cybernetics -- Collection of Works], No. 23, Moscow, Nauka Press, 1970, pp 5-25 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V490 by G. Blokhina).

Translation: Conditions of completeness are studied for one class of automata without feedback -- functions with delays (RZhMat,1965, 7V288). Let ${}^{l}P_2$ be the set of all logic algebra functions (laf) with delays not exceeding l, i. e., pairs (f,t), where f is an laf, t is a natural number not exceeding l. The set $M \subset {}^{l}P_2$ is called l-complete if by using the operations of "synchronous superposition" based on the elements of set M it is possible to produce any laf with delay l. Conditions are studied which must be satisfied by l-complete systems. It is demonstrated that in the general case some classes in ${}^{l}P_2$ are not expanded to l-subcomplete, i. e., two systems which, without being l-complete, forms an l-complete system with any pair (f, t) which does not belong to it. This means that the criterion of l-completeness in this case cannot be formulated in terms of nonmembership in all l-subcomplete classes. This fact is correct for all $l>1$. The case of l-completeness is particularly fully studied. It is demonstrated that a finite system is l-complete if and only if it does not belong to a

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USSR

UDC 51.621.391

BIRYUKOVA, L. A., KUDRYAVTSEV, V. B., Probl. Kibernetiki, No. 25, Moscow, Nauka Press, 1970, pp 5-25.

certain finite number of 1-subcomplete classes and three strictly increasing chains of closed classes, none of which are contained in any of the 1-subcomplete classes. This indicates, in particular, the existence of an algorithm establishing 1-completeness of any finite system of functions with delays. It is demonstrated that, generally speaking, it is not always possible to separate a finite and also an 1-complete system from any 1-complete system, and that the power of the set of closed classes in $^{1}P_{2}$ is equal to a continuum. A number of other properties of this functional system are also established.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DECALCIFICATION OF POLYOLEFINS -U-

AUTHOR-(05)-IVANYUKOV, D.V., KRYMOV, P.V., KUDRYAVTSEV, V.B., LYAKUMOVICH, A.G., BOBUK, N.S.
COUNTRY OF INFO--USSR

SOURCE--USSR 263,141
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DECALCIFICATION, ALKENE, CATALYTIC POLYMERIZATION, CHEMICAL PATENT, SURFACE ACTIVE AGENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1474 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128873
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0128873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYOLEFINS PREPD. ON ZIEGLER NATTA CATALYSTS WERE DECALCIFIED BY BEING WASHED WITH HOT SOFT WATER CONTG. DISSOLVED SURFACTANTS, SUCH AS K OR NA SALTS OF STIROMAL. A SOLN. OF THESE SALTS WAS PASSED THROUGH AN A. C. OR D. C. ELECTROMAGNETIC FIELD BEFORE IT WAS USED IN THE WASHING PROCESS.

UNCLASSIFIED

USSR UDC 616.136.4+616.149.21]-001.29-092.9-085.276-059:615.355:577.156.014

UKLONSKAYA, L. I., KUDRYAVTSEV, V. D., SUSHKEVICH, L. N., and CHERKASOV, V. F., Department of Radiation Pathophysiology (Chief, Prof. V. P. Baluda), Scientific Research Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"The Effect of Antiphlogistic and Antiproteolytic Preparations on Vascular Disturbances of the Intestines of Animals Irradiated by Superlethal Doses"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 76, No 8, Aug 73, pp 37-39

Abstract: In experiments conducted on rats irradiated with superlethal doses of Co^{60} gamma-rays (900 and 1000 r), antiphlogistic (butadion -- 5 mg/kg, paracetamol -- 15 mg/kg, and rheopyrene -- 3 mg/kg) and antiproteolytic (trasylol -- 7.5 CIU/kg in combination with E-aminocapronic acid -- 200 mg/kg) preparations were injected intraperitoneally. The functional condition of the vascular wall of the small and large intestines of rats was assessed 72 hours after irradiation by the appearance of Evans blue in the intestinal tissues.

Butadion, which considerably diminished the amount of stain in the tissue, proved to be the most effective. It also increased the survival period

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USSR

UKLONSKAYA, L. I., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 76, No 8, Aug 73, pp 37-39

of the irradiated animals; this permitted the supposition to be made that vascular disturbances played a definite role in the pathogenesis of the intestinal form of radiation sickness. 2 figures. 13 references.

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USSR

UDC 577.391

KUDRYAVTSEV, V. D., NESTERENKO, V. S., and CHERKASOV, V. F., Institute of Medical Radiology, Academy of Medical Sciences USSR, Obninsk

"The Effect of Whole-Body Gamma-Ray Irradiation on Some Receptor Functions in Rat Skeletal Muscle"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1970, pp 611-613

Abstract: The threshold of electrical stimulation of gastrocnemius receptors in Wistar rats dropped 2 to 3 hours after wholebody irradiation (900 r) and continued to drop steadily until the 5th day, when the excitability of the receptors tended to return to normal. However, on the 7th day the threshold again began to drop. The latent period of excitation in response to single submaximum stimulation was the same as in controls 2 to 3 hours after irradiation, but lengthened significantly thereafter until the 5th day when it approached control values. On the 7th day the latent period again started to lengthen. Following submaximum stimulation when prolonged depolarization of the receptors sets in, impulse activity is partly or entirely blocked because of depression of receptor potential.

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USSR

UDC 639.2.081.7

KUDRYAVTSEV, V. I. (Ministry of fishing industry USSR)

"Apparature of Telemetric Control of the Parameters of a Trawl."

Moscow, Rybnoye Khozyeystvo, Tekhnika Rybolovstva (Fishing Industry, Technique of Fishing), No 4, 1970, pp 59-62

Abstract: The issue of a series of radioelectronic multiparametric apparatures on the order of "Leningrad" is intended for use in domestic fishing industry. The apparature can measure and control the basic pelagic and ground parameters of the trawls, record the temperature at the place of the trawl, and indicate the direction of its motion. It can be set up on all types of sea vessels with a speed of six knots. The device can measure the depth of the trawl between 20-400 meters, the distance of the trawl from the bottom from 3-15 meters, and the temperature of the water at the place of the trawl from 0°C to + 30°C. The instrument also measures the amount of fish caught in the trawl. All these data of information are recorded automatically on the control vessel. The working distance between the vessel and the trawl should be less than 900 meters and the speed not too fast since it would interfere with the hydroacoustic measurements.

The author then discusses the technical and mechanical features of the apparature and of the ultraacoustic hydrophonic constructions considering their limitations under varying conditions. (The article to be continued in following number)

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USSR

UDC 582.282.23:069

KUDRYAVTSEV, V. M., Institute of Biology of Inland Waters, USSR Academy of Sciences

"Bacterial Abundance, Generation Time, and Production in the Volga and Its Reservoirs in 1970"

Moscow, Mikrobiologiya, No 1, 1973, pp 141-147

Abstract: Study of bacterial plankton in the Ivan'kovo, Volgograd, Kuybyshev, Rybinsk, Uglich, and Saratov reservoirs and various unregulated portions of the Volga over more than 3000 km extending from Kalinin to Astrakhan in 1970 showed that the total number of bacteria averaged 2,400,000 to 4,200,000/ml in May and June after the flood period; it dropped to 1,600,000 to 3,100,000/ml in September and October after the plankton died off. In May and June, the generation time of the bacteria ranged from 13.4 to 51.5 hours determined by Ivanov's method and from 9.4 to 28.3 hours when calculated from the heterotrophic assimilation of carbon dioxide. Bacterial reproduction slowed considerably in the fall, 29.5 to 76.4 and 23.9 to 68.4 hours, respectively. The number of bacteria consumed by the zooplankton varied from 59,000 to 183,000 cells/ml/hours in the spring and from 17,000 to 100,000 cells/ml/hour in the fall. The assimilation of CO_2 was highest in the Ivan'kovo and Saratov reservoirs and vicinity of the city of Rybinsk - from 6.2 to 7.7 μg C/liter/day. 1/2

USSR

KUDRYAVTSEV, V. M., Mikrobiologiya, No 1, 1973, pp 141-147

It was lowest in the Uglich and Volgograd reservoirs - from 2.2 to 3.0 mg C/liter/day. The drop in water temperature in the fall markedly slowed the rate of assimilation of CO_2 everywhere.

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USSR

UDC: 621.316.721

LYSENKO, A. P., KUDRYAVTSEV, V. P., D'YAKOV, O. P., and NOVIKOV, I. V.

"Current Stabilizer"

USSR Author's Certificate No 296251, filed 3 Nov 69, published 14 Apr 71 (from Ref. Zh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No. 12, 1971, Abstract No 12A184P)

Translation: A current stabilizer is proposed, containing a sensitive element, a reference signal source, as well as a comparitor and an activating device. In order to improve the accuracy and speed, it uses as a sensitive element a "current-frequency" converter; and as the comparitor, a frequency-comparison device and counter, while it uses a controlled voltage divider as the activating device. The output of the controlled divider is connected to the input of the "current-frequency" converter; the output of the latter is connected to the input of the frequency-comparison device, the second output of which is tied to the output of the reference signal source; while the output of the frequency comparitor is joined through the counter to the input of the controlled voltage divider. Resume.
1/1

1/2 050 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--BEHAVIOR OF HEAT RESISTANT ELECTRIC INSULATING COATINGS DURING THE EXTENSION AND BENDING OF TRANSFORMER STEEL -U-

AUTHOR-(04)-KUDRYAVTSEV, V.V., PETRENKO, A.G., ANDREYEV, V.L., BORISENKO, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 310-16

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HEAT RESISTANT MATERIAL, TRANSFORMER STEEL, PROTECTIVE COATING, ELECTRIC INSULATION, PHOSPHATE, MAGNESIUM COMPOUND, BENDING STRENGTH/(U)KARLIT PROTECTIVE COATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0556 STEP NO--UR/0048/70/034/002/0310/0316

CIRC ACCESSION NO--AP0105541

UNCLASSIFIED

2/2 050 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105541

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE STRAIGHTENING ANNEALING TEMPERATURE OF COILED TRANSFORMER STEEL (700-850DEGREES), MG PHOSPHATE COATING APPLIED ON AN INTERMEDIATE MG SILICATE SUBSTRATE (2 LAYER COATING) DOES NOT UNDERGO VISIBLE FAILURES AT 2-6PERCENT EXTENSION. COATING OF THE "KARLIT" TYPE ACQUIRES SUFFICIENT ELASTICITY ONLY AT 900DEGREES AND DOES NOT FAIL AT 6PERCENT DEFORMATION. MG PHOSPHATE COATING, WITHOUT AN INTERMEDIATE COATING DOES NOT ENSURE SUFFICIENT PROTECTION OF THE STEEL AGAINST OXION. AT 700-850DEGREES WITHOUT A PROTECTIVE ATM. AND FAILS AT A RELATIVE ELONGATION OF 4-9PERCENT AND 700-800DEGREES. IN BENDING, VISIBLE DETERIORATION OF THE COATING ON THE INSIDE SURFACE OF THE BENDING SPECIMEN STARTS EARLIER IN ALL CASES, FOR GREATER RADI OF CURVATURE. THE STABILITY OF THE COATING DEPENDS, TO A GREAT DEGREE, ON THE PROPERTIES OF THE METAL, THICKNESS AND NATURE OF COATING, AND A NO. OF OTHER FACTORS. THE 2 LAYER COATING ON METAL WITH LARGE AND MEDIUM GRAIN AS WELL AS ON METAL WITH CLASS 10 CLEAN SURFACE DID NOT SEP. ON THE EXTERNAL SIDE OF THE BENDING SPECIMENS DOWN TO MIN. RADII OF BEND TESTS OF 5 AND 10 MM.

UNCLASSI

USSR

UDC 539.196

KUDRYAVTSEV, YE. M., and FAYZULAYEV, V. N., Moscow

"The Formation of an Inversion in a Stream of Mixed CO_2-H_2O-N_2 Expanding Through A Crack"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, 1973, pp 25-31

Abstract: The vibratory relaxation kinetics are calculated for CO_2 molecules in a CO_2-H_2O-N_2 mixture escaping through a "crack" into a vacuum. The crack is a special nozzle with a 120°-angle of exposure. The study of vibratory relaxation was reduced to the solution of kinetic equations corresponding to the most important paths of energy exchange in vibratory-vibratory and vibratory-translational processes. It was found possible to consider the dynamics of a non-equilibrium gas in approximation as the adiabatic movement of a medium with an effective adiabatic index corresponding to a certain degree of "freezing" of the vibratory component of the gases heat capacity.

This makes it possible to use the solutions of gas dynamic equations corresponding to isentropic gas flow with a constant adiabatic index in the kinetic equations, finding the value of local Mach numbers by numerical integration of the gas dynamic equations.

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USSR

KUDRYAVTSEV, YE. M., et al., Moscow, Zhurnal Prikladnoy Mekhaniki i Teckhnicheskoy Fiziki, No 6, 1973, pp 25-31

The complete system of relaxation equations was analyzed by Runge-Kutta methods on a M-220 computer. A vibratory-rotational population inversion was found for CO_2 molecules at the 10.6 micron transition, with the rotational temperature assumed equal to the gas temperature. Both Doppler and Lorentz mechanisms of line broadening were considered in calculating the coefficient of amplification, which was found to agree well with experimental values.

The configurations of the gas flow and the locations of various processes are described in detail. It is found that a temperature of approximately 2200°K and a pressure of approximately 20 atmospheres are optimum conditions for maximum amplification, since a further increase in temperature and pressure, while increasing the quantity of excited CO_2 molecules, also increases the relaxation rate. Water vapor is found to significantly accelerate the relaxation processes. The effects on relaxation processes and results of changes in aperture geometry are also discussed.

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USSR

UDC 621.375.82

DEMIN, A. I., KUDRYAVTSEV, Ye. M., SOBOLEV, N. N., FAYZULAYEV, V. N.

"Gasdynamic Laser With a High Water Vapor Content"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 3, Moscow, "Sov. radio", 1972, pp 72-73 (from RZh-Fizika, No 1, Jan 73, Abstract No 1D928)

Translation: A gasdynamic laser using a CO_2-H_2O-N_2 mixture heated by a reflected shock wave is investigated. The mixture flowed through a slit. The parameters of the gas mixture heated by the shock wave were: T = 1300--2250°K, p = 5-88 atm. The laser amplification for a high water content in the working mixture was investigated (the magnitude of $[H_2O]$ was comparable with $[CO_2]$). An electric discharge CO_2 laser was used as probing radiation. Amplification was observed up to $[H_2O]/[CO_2] = 1$ for $[N_2]/[CO_2] = 4$, T = 2250°K, p = 22 atm. Maximum amplification in this case was observed at a distance of 22 mm from the slit and amounted to $0.4 \cdot 10^{-2}$ cm^{-1}. Authors' abstract.

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KUDRYAVTSEV, Ye. M.

USSR

UDC 534,222.2

VINOKUROV, A. YA., KUDRYAVTSEV, YE. M., MIRONOV, V. D., TREKHOV, YE. S.

"Study of Oscillatory Relaxation of Carbon Monoxide"

V sb. 3-y Vses. simposium po goreniyu i vzryvu, 1971 (Third All-Union Symposium on Combustion and Explosion, 1971--collection of works), Chernogolovka, 1971, pp 282-284 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B123)

Translation: The distribution of the density ρ in the relaxation zone of a shock wave and the time τ of oscillatory relaxation of CO in the 2,200-3,500°K temperature range are found by measuring the radiation intensity of the valence band of the CO molecule (wavelength 4.76 microns). The dependence of τ on T is described by the formula

$$\rho\tau = \exp(194T^{-1/3} - 10.7)\{1 - \exp(1 - 3080/T)\}^{-1} \text{ microseconds} \cdot \text{at} \quad (1)$$

The existing divergence of the values of τ found from the data of other authors is possibly connected with the fact that, in contrast to (1), the other authors represent the result of averaging τ over the relaxation zone.

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USSR

DRONOV, A. P., D'YAKOV, A. S., KUDRYAVTSEV, YE. M., SOBOLEV, N. N.

"Gas Dynamic CO_2 Laser With Escape Through a Slot of the Working Mixture Heated in the Shock Tube"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 11, 5 June 1970, pp 516-519

Abstract: This article contains a description of an experiment and the results of detecting amplification and generation of the laser radiation of CO_2 molecules during expansion of a gas through a slot. In this case greater cooling rates are obtained than when using a nozzle. A triple mixture of 73 percent He, 18 percent CO_2, and 9 percent N_2 was used. The mixture was heated to 1,800 $\pm$200°K (at a pressure of 25 atmospheres) in a shock tube beyond a reflected shock wave. The shock tube with an inside diameter of 90 mm had a partition with a slot 0.7 x x 60 mm. The slot was covered with foil (10 microns thick) which made it possible to obtain different pressures on each side of the slot before the experiment. On reflection of the shock wave the foil ruptured practically instanteously, and after this the gas mixture heated by the reflected shock wave leaked from the forechamber into the

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USSR

DRONOV, A. P., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 11, 5 June 1970, pp 516-519

receiver (at a pressure of 1 torr). It was confirmed in the experiments that cooling of the carbon dioxide gas on expansion of the jet in a vacuum and the decrease in density lead to the fact that at some distance from the slot in the receiver a maximum inversion (and amplification) must be observed. The maximum value of $k \sim 10$ percent /K is the amplification or absorption coefficient/ was reached at a distance of 35 mm from the slot. Because of the nature of the amplification coefficient the axis of the resonator was located at a distance of 35 mm from the slot in the experiments to obtain generation. An oscillogram is presented showing a standard recording of generation. The length of the generation pulse coincides with the length of the amplification pulse. This agrees with the picture of infrared glow of the mixture in the receiver. Glow begins somewhat before the amplification and generation processes, and three milliseconds after the time of reflection the glow of the mixture (and its temperature) drops sharply as a result of the effect of the expansion waves arriving at the slot. This leads to a reduction in the amplification and generation.

2/2

USSR

UDC: 621.385:530.145.6:623.317.17

KONTSEVOY, Yu. A., REZVYY, R. R., GOLOLOBOV, V. M., and KUDRYAVTSEV, Ye. N.

"Ellipsometric Control Methods Using a Laser"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Engineering, Scientific-Technical Collection, Quality and Standardization Control) 1970, No. 2, pp 115-122 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D393)

Translation: A description is given of laser ellipsometric microscopes with beam incidence angles of 45 and 70°, designed for nondestructive control of thickness and refraction indices of fine transparent dielectric layers on the surface of semiconductors, as well as for measurement of the uniformity of these parameters. A system is given of graphic solution for an exact ellipsometry equation for germanium and silicon specimens. The utilization areas of ellipsometers are examined. Resume

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USSR

KUDRYAVTSEV, Yu. A.

"Reduction of Modular Synthesis of Special-Purpose Computers to a Problem in Integer Linear Programming"

Vychisl. Tekhnika [Computer Technology -- Collection of Works], No 2, Leningrad, Energiya Press, 1972, pp 100-103 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V537, by the author).

Translation: A special purpose digital computer is looked upon as a certain set of three types of modules: control, operational and memory modules. Any arithmetic or logic operation of an algorithm is represented as a set consisting of formation of a sequence of control signals, selection and transmission of operands, actual performance of the operation and transmission of the result produced to storage. The presentation is illustrated by the process of formalization of modular synthesis of a special purpose digital computer designed to realize a simple algorithm.

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USSR

UDC 541.135.52

KUKOZ, F. I., KUDRYAVTSEV, YU. D., MAKOGON, YU. O., and FRESENKO, L. N., Novocherkassk Polytechnic Institute

"Behavior of Nickel During a-c Electrolysis in Alkali Solutions. 1. Effect of the Alkali Nature and the Current Density"

Moscow, Elektrokhimiya, Vol 7, No 7, Jul 71, pp 990-994

Abstract: The intense destruction under certain conditions, of nickel electrodes in alkaline solutions by a-c electrolysis was experimentally investigated on electrodes in the form of rectangular plates of a total area of approximately 1 cm^2 of smooth nickel, type NP-2. Symmetrical and asymmetrical alternating currents with different amplitude values and similar duration of half-periods of anode and cathode currents were obtained. Destruction of Ni took place only when $i_c \cdot i_a \geq 1$ and $i_a \neq 0$, where i_c and i_a are the amplitudes of currents in the cathodic and anodic half-periods, respectively. Tabulated and experimental data show that the destruction rate increases in the series LiOH, NaOH, and KOH and passes the maximum at $i_a = 0.25$ a/cm^2 for constant value of $i_a = 1$ a/cm^2 and that on the boundary metal-1/2

USSR

KUKOZ, F. I., et al., Elektrokhimiya, Vol 7, No 7, Jul 71, pp 990-994

-solution there exists a linear impedance by current densities up to 1 a/cm^2. It was found that the destruction of Ni is mainly dependent on processes on the surface of the electrode during the cathodic half-period of polarization and that the effect of cations of the alkaline metal in the destruction process of Ni is apparently combined with the swelling of reducible Ni hydroxides. Two illustrations, one table, six bibliographic references.

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USSR

UDC 621.375.82

SOKOLOVSKAYA, A. I., KUDRYAVTSEVA, A. D., SUSHCHINSKIY, M. M.

"Self-Focusing, Induced Raman Emission in Substances With Small Kerr Constants"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 262-266 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D890)

Translation: A study is made of the self-focusing of laser radiation in a ruby in a modulated Q-factor mode and the induced Raman emission caused by it in liquid nitrogen and calcite as functions of the thickness of the scattering layer and the pumping energy of the laser. The experimental conditions are similar to those described previously (RZh-Fizika, 1972, 6D1130). In nitrogen induced Raman emission occurred in the inhomogeneities of the laser radiation, inside which self-focusing of the first Stokes component of induced Raman emission was also observed. The number of points of occurrence of induced Raman emission and self-focusing depended on the thickness of the nitrogen layer and the energy of the laser radiation. The first self-focusing ray was observed in nitrogen at a laser radiation energy of 0.013 joules. With an increase in the energy of the laser radiation the number of self-focusing rays increased to 30-40. A further increase in the laser radiation energy led to blurring of the pattern at the output end of

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USSR

SOKOLOVSKAYA, A. I., et al., Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 262-266

the cuvette without significant increase in the number of self-focusing rays. In the cases of appearance of self-focusing near both ends of the cuvette, anti-Stokes radiation was observed along the axis. The self-focusing of the laser radiation with energies of 0.2-3 joules was observed in a maximum layer 100 mm thick. Only self-focusing of the induced Raman emission was observed, and self-focusing of the laser radiation was not detected. In as much as the calculated values of the self-focusing thresholds as a result of the Kerr nonlinearity appreciably exceeded the experimental values, the conclusion was drawn that self focusing was observed by an increase in polarizability of the molecules on excitation of them. The bibliography has 10 entires.

2/2

USSR

UDC 681.327.11

VOROB'YEV, A. D., KUDRYAVTSEVA, A. A., PRYADKIN, A. M., PATS, V. B., SHAMURINA, R. Z.

"Mosaic Printer"

Moscow, Otkrytiya izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No. 17, May 72, p 159

Translation: Patent No. 339925, class G 06k 15/02 was granted for a mosaic printer containing a mechanism for feeding paper and ribbon, a carriage, and a unit of metal tapes insulated from one another and placed in a magnetic field. The ends of the tape are connected to an excitation unit. The printer is distinguished by the fact that a fulcrum is fastened to it on the carriage at an angle to the metal tape unit located on the opposite side of the paper in order to increase the speed of the device.

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USSR

UDC 621.373.826:621.317

ANGERT, N. B., BUTYAGIN, O. F., ZORENKO, V. P., KUDRYAVTSEVA, A. P., KUSHNIR, V. R., RUSTAMOV, S. R.

"Phase Matching Angles and Temperatures for Lithium Metaniobate Crystals with Different Stoichiometry"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), Moscow, No 5, 1971, pp 128-129 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D454)

Translation: The results of measuring the phase matching angles and temperatures for generation of the second harmonic in $LiNbO_3$ crystals with stoichiometric coefficient from 0.9 to 1.2 are discussed. A helium-neon laser (λ = 1152 nm) and a YAG:Nd^{3+} garnet laser (λ = 1064 nm) were used for the measurements. The results obtained are in good agreement with the calculated results. There are 2 illustrations and a 6-entry bibliography.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SURVIVAL AND SPREAD OF B. COLI GROUP IN GROUND WATERS -U-

AUTHOR--KUDRYAVTSEVA, B.M.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 6, PP 14-19

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--ESCHERICHIA COLI, WATER POLLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1848 STEP NO--UR/0240/70/000/006/0014/0019

CIRC ACCESSION NO--AP0125459
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125459

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL CONTAMINATION OF GROUND WATERS IN FINE GRANULAR SAND STRATUM WITH CLEARED FECAL SEWAGE AND BACTERIAL SUSPENSION OF AN ENTEROPATHOGENIC STRAIN OF E. COLI 408 SHOWED COLIFORM TO SURVIVE IN GROUND WATERS FOR A PERIOD OF 3-3, 5 MONTHS AND TO RETAIN ITS CULTURAL PROPERTIES. FACILITY: INSTITUT OBSHCHEY I KOMMUNAL'NOY GIGIYENY IMENI A. N. SYSINA AMN SSSR MOSKVA.

UNCLASSIFIED

KUDRYAVTSEVA G.

Acc. Nr.: AN0040371 Rec. Code: JPRS0533

AUTHOR-- KUDRYAVTSEVA, G., CORRESPONDENT

TITLE-- THE "SOYUZ" SHIP AT THE VDNKH

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, APRIL 11, 1970, P 4, COLS 2-8

ABSTRACT-- THE ARTICLE DESCRIBES NEW EXHIBITS AT THE EXPOSITION OF ACHIEVEMENTS OF NATIONAL ECONOMY, AMONG THEM "AN EXPERIMENTAL", 13-TON SPACE STATION SIMILAR TO THE ONE FORMED IN ORBIT ON JANUARY 16, 1969, BY JOINING OF "SOYUZ-4" AND "SOYUZ-5" SPACE SHIPS.

A PHOTOGRAPH OF AN EXPERIMENTAL MANNED ORBITAL STATION IS GIVEN.

/ABSTRACTER,S NOTE-- IT IS NOT CLEAR WHETHER THE PHOTOGRAPH DEPICTS AN ORBITAL STATION "SIMILAR" TO THE MATED "SOYUZ-4" AND "SOYUZ-5" SHIPS OR THE ONE MADE UP BY THESE TO SHIPS./

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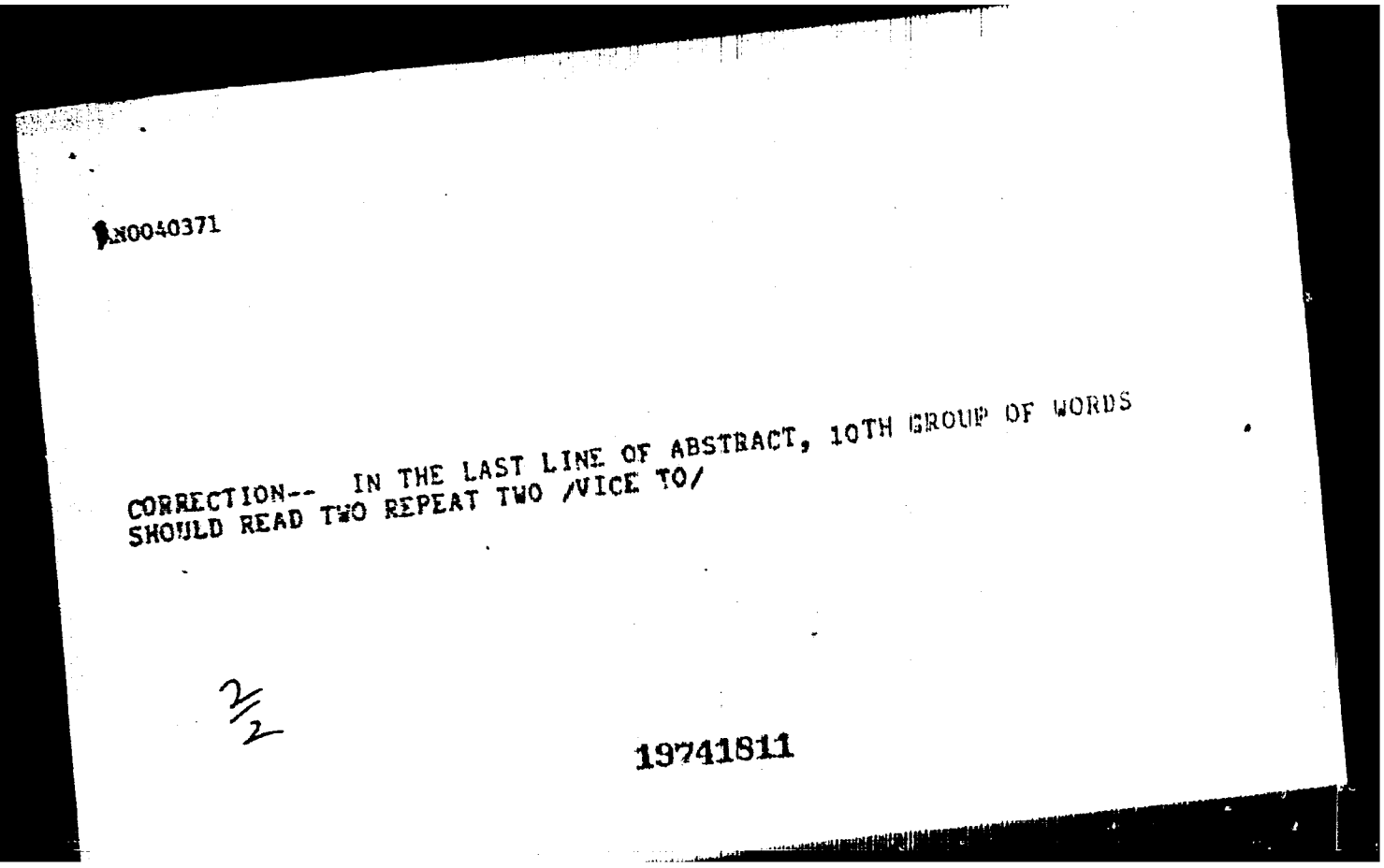
Reel/Frame 19741510



AN0040371

CORRECTION-- IN THE LAST LINE OF ABSTRACT, 10TH GROUP OF WORDS SHOULD READ TWO REPEAT TWO /VICE TO/

2/2

19741811

UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 042

TITLE--IN THE ORBIT EVERYTHING IS OK -U-

AUTHOR--KUDRYAVTSEVA, G.

K

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYA, JUNE 7, 1970, P 3, COLS 1-6

DATE PUBLISHED--07JUN70

SUBJECT AREAS--SPACE TECHNOLOGY

TOPIC TAGS--FLIGHT CONTROL SYSTEM, TELEMETRY, MANNED SPACECRAFT/(U)SOYUZ 9 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0823 STEP NO--UR/0539/70/000/000/0003/0003

CIRC ACCESSION NO--AN0104262

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 042

CIRC ACCESSION NO--AN0104262

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR REPORTS ON HIS VISIT TO THE FLIGHT CONTROL CENTER AND HIS SPACE INTERVIEW WITH NIKOLAYEV AND SEVAST, YANOV. THE ARTICLE MENTIONS THE TELEMETRY DATA ANALYSIS TEAM, GRUPPA ANALIZA TELEMETRICHESKOY INFORMATSII, COMPOSED OF PEOPLE REPRESENTING ALL SYSTEMS WHICH ARE CARRIED BY THE "SOYUZ 9". THIS TEAM IS RESPONSIBLE FOR THE PROPER FUNCTION OF ALL ON BOARD SYSTEMS. IN CASE OF MALFUNCTION, THE TEAM WORKS OUT THE SOLUTION. THE PERMISSION TO INTERVIEW THE ASTRONAUTS DURING THE 50TH REVOLUTION WAS GRANTED BY N. P. KAMANIN AND THE HEAD OF THE MAIN OPERATIONS TEAM OF THE FLIGHT CONTROL, GLAVNAYA OPERATIVNAYA GRUPPA UPRAVLENIYA.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--IN THE ORBIT AND ON THE GROUND -U-

AUTHOR--KUDRYAVTSEVA, G.

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYA, JUNE 17, 1970, P 3, COLS 1-3

DATE PUBLISHED--17JUN70

SUBJECT AREAS--SPACE TECHNOLOGY

TOPIC TAGS--MANNED SPACECRAFT, EARTH SATELLITE ORBIT/(U)SOYUZ 9 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0888 STEP NO--UR/0533/70/000/000/0003/0003

CIRC ACCESSION NO--AN0107417

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0107417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THIS REPORT, THE "BARBEQUE" MODE OF THE "SOYUZ-9" EXPOSED THE PANELS OF ITS SOLAR BATTERIES TO THE SUN AT THE RIGHT ANGLE, PRODUCING EXCESS POWER IN BUFFER BATTERIES. TO CORRECT THIS, THE SHIP WAS MADE TO ROTATE OBLIQUELY.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--TWO ARE WORKING IN ORBIT -U-

AUTHOR--KUDRYAVTSEVA, G.

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYA, JUNE 3, 1970, P 3, COLS 3-8

DATE PUBLISHED----JUN70

SUBJECT AREAS--SPACE TECHNOLOGY

TOPIC TAGS--MANNED SPACECRAFT, COSMONAUT/(U)SOYUZ 9 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1912 STEP NO--UR/0533/70/000/000/0003/0003

CIRC ACCESSION NO--AN0104986
UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104986

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE GIVES BIOSKETCHES OF A. N. NIKOLAYEV AND VITALIY IVANOVICH SEVAST'YANOV, SOVIET ASTRONAUTS WHO ARE FLYING THE "SOYUZ-9". SEVAST'YANOV, THE 22ND SOVIET ASTRONAUT, WAS BORN IN 1935 IN KRASNOURAL.SK. IN 1959, HE GRADUATED FROM THE MOSCOW AVIATION INSTITUTE IMENI ORDZHONIKIDZE AND JOINED SOME DESIGN BUREAU. HE JOINED THE SOVIET ASTRONAUTS IN MARCH OF 1960. CANDIDATE OF TECHNICAL SCIENCES SEVAST'YANOV WAS A. YELISEYEV'S BACK UP MAN. THE ARTICLE CONTAINS THREE PHOTOGRAPHS WHICH SHOW NIKOLAYEV AND SEVAST'YANOV ENTERING THE SPACE SHIP AND DURING THEIR TRAINING.

UNCLASSIFIED

1/2 050 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--DEFORMATIONS OF SHELL OF SOYUZ 9 MEASURED DURING FLIGHT -U-

AUTHOR--KUDRYAVTSEVA, G.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SOTSIALISTICHESKAYA INDUSTRIYA, 10 JUNE 1970, P 3

DATE PUBLISHED--10JUN70

SUBJECT AREAS--SPACE TECHNOLOGY, PHYSICS

TOPIC TAGS--SHELL DEFORMATION, SHELL DESIGN, MANNED SPACECRAFT, SPACECRAFT STRUCTURE, PRESSURE/(U)SOYUZ 9 MANNED SPACECRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1616 STEP NO--UR/0533/70/000/000/0003/0003

CIRC ACCESSION NO--AN0135249

UNCLASSIFIED

2/2 050 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AN0135249

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN HER REPORT FROM THE FLIGHT CONTROL CENTER CORRESPONDENT G. KUDRYAVTSEVA REPORTS AN INTERVIEW WITH VALERIY KUBASOV, THE "COSMONAUT RESPONSIBLE FOR THE SCIENTIFIC PORTION OF THE FLIGHT," AND COSMONAUT ALEKSEY YELISEYEV. FOLLOWING ARE EXCERPTS FROM THE INTERVIEW: "ALMOST A THIRD OF THE SCIENTIFIC INVESTIGATIONS ON THIS FLIGHT," ADDS YELISEYEV, "COMPRISE TECHNICAL EXPERIMENTS RELATED TO THE TESTING OF NEW SYSTEMS AND WILL BECOME 'ROUTING' WORK ON FUTURE SPACE FLIGHTS; IT IS SIMPLY THE SYSTEMATIC METHODOLOGICAL IMPROVEMENT OF SPACE TECHNOLOGY. IMAGINE THE 'SOYUZ' SPACECRAFT, CONSISTING OF THREE LARGE COMPARTMENTS WITHIN WHICH A NORMAL ATMOSPHERIC PRESSURE IS MAINTAINED. IN SPACE THE STRUCTURE OF THE SHIP ACTUALLY FUNCTIONS UNDER CONDITIONS OF A DEEP VACUUM. ITS WALLS ARE STRAINED BY THE CABIN'S INTERNAL PRESSURE, WHICH IS NECESSARY FOR THE LIFE OF THE CREW. "THE DESIGNERS ATTEMPT TO LIGHTEN THE SHIP AS MUCH AS POSSIBLE, REMEMBERING THAT DOZENS OF KILOGRAMS OF FUEL MUST BE EXPENDED TO PLACE ON KILOGRAM OF USEFUL WEIGHT INTO SPACE. UNDER FLIGHT CONDITIONS A SHELL OF ANY VOLUME, IN THIS CASE THE SHELL OF THE 'SOYUZ 9,' WILL 'BREATHE' OR BE DEFORMED. INSTRUMENTS ATTACHED RIGIDLY TO THIS SHELL WILL CHANGE THEIR RELATIVE POSITIONS. THIS HAS NO DECISIVE IMPORTANCE IN THIS PARTICULAR FLIGHT. BUT FOR FUTURE VOYAGES, THE EXPERIMENT BEING PERFORMED NOW BY NIKOLAYEV AND SEVAST'YANOV TO DETERMINE THE DEGREE OF 'BREATHING OF THE SHELLS' IS VERY IMPORTANT".

UNCLASSIFIED

1/4 062 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--PLANETARY PATROLS, NOTES ON USE OF METEOROLOGICAL SATELLITES -U-

AUTHOR--KUDRYAVTSEVA, G.

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYA, 24 MAY 1970, P 1

DATE PUBLISHED-------70

SUBJECT AREAS--SPACE TECHNOLOGY, ATMOSPHERIC SCIENCES

TOPIC TAGS--METEOROLOGIC SATELLITE, VERTICAL PROFILE, WEATHER PROFILE, HEAT BALANCE, SPACECRAFT CARRIED EQUIPMENT, ATMOSPHERIC RADIATION, MICROWAVE, ARTIFICIAL EARTH SATELLITE, AEROSOL, SPECTROGRAPH, SPACEBORNE EARTH PHOTOGRAPHY/(U)SOYUZ 7 MANNED SPACECRAFT, (U)SOYUZ 5 MANNED SPACECRAFT, (U)COSMOS 243 SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1603 STEP NO--UR/0533/70/000/000/0001/0001

CIRC ACCESSION NO--AN0135244

UNCLASSIFIED

2/4 062 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AN0135244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SESSIONS OF WORKING GROUP ON SPACE RESEARCH HAVE BEEN HELD AT THE COSPAR SESSION IN LENINGRAD. VARIOUS REPORTS ON THE THEME "MEASUREMENTS OF VERTICAL PROFILES IN THE ATMOSPHERE" WERE HEARD IN WORKING GROUP VI "USE OF SPACE TECHNOLOGY FOR METEOROLOGY AND STUDY OF THE EARTH". A HIGHLY INTERESTING REPORT WAS PRESENTED BY K. YA. VOLKOV AND YE. V. KHRUNOV ON REMOTE SOUNDING OF THE ATMOSPHERE FROM SATELLITES AND MANNED SPACESHIPS. WE ASKED K. YA. KONDRAT'YEV, DIRECTOR OF THE WORKING GROUP, TO TELL THE READERS OF SOTSIALISTICHESKAYA INDUSTRIYA ABOUT ADVANCES IN THIS FIELD OF SPACE SCIENCE. THE SCIENTIST STATED: "THE COLLECTION OF ALL KINDS OF DATA ON THE STATE OF THE ATMOSPHERE IS VERY IMPORTANT FOR IMPROVING WEATHER FORECASTS. METEOROLOGICAL SATELLITES AND SYSTEMS OF SATELLITES ALREADY EXIST IN THE SOVIET UNION AND IN THE UNITED STATES. ORBIT AFTER ORBIT THESE WEATHER PATROLS INSPECT THE ENTIRE PLANET FROM ABOVE, REGISTERING THE DYNAMICS OF ITS ATMOSPHERE. DAILY WE RECEIVE A CONSIDERABLE NUMBER OF TELEVISION AND INFRARED IMAGES OF THE EARTH WHICH CHARACTERIZE THE CLOUD COVER DISTRIBUTION OVER THE EARTH'S SURFACE. WE LEARN OF THE PLANETARY HEAT BALANCE BY MEANS OF ACTINOMETRIC APPARATUS ALSO CARRIED BY SATELLITES". "HOWEVER, TODAY THE MAIN PROBLEM IS DEVELOPING QUANTITATIVE FORECASTING METHODS USING ELECTRONIC COMPUTERS. THIS REQUIRES INITIAL DATA ON THE SPATIAL DISTRIBUTION OF AIR HUMIDITY, PRESSURE AND TEMPERATURE WHICH ARE FED INTO A COMPUTER. UNTIL RECENTLY SATELLITES PROVIDED VIRTUALLY NO SUCH INFORMATION. THE METHODS FOR OBTAINING SUCH INFORMATION CAN BE ONLY INDIRECT.

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ABSTRACT/EXTRACT--METEOROLOGICAL SATELLITES USUALLY FLY VERY HIGH OVER THE THICKNESS OF THE ATMOSPHERE IN WHICH TRANSPIRE THE PROCESSES DETERMINING THE WEATHER. USING SATELLITES WE CAN MEASURE ATMOSPHERIC RADIATION AT DIFFERENT WAVE LENGTHS. THEN, USING THESE MEASUREMENTS, IT IS POSSIBLE TO FIND METEOROLOGICAL PARAMETERS; THE SAME AS WE KNOW THAT THE TEMPERATURE OF THE SUN IS 6,000DEGREES, ACCORDING TO DATA FROM MEASUREMENTS OF SOLAR RADIATION. BY MAKING MEASUREMENTS OF ATMOSPHERIC RADIATION IN SPACE WE CAN DETERMINE AIR TEMPERATURE AT DIFFERENT ALTITUDES. THIS MAKES IT POSSIBLE TO SOLVE THE PROBLEM OF SO CALLED THERMAL SOUNDING OF THE ATMOSPHERE FROM SATELLITES. FOR EXAMPLE, THE "KOSMOS 243" SATELLITE WAS USED IN MAKING THE FIRST MEASUREMENTS OF ATMOSPHERIC MICROWAVE RADIATION IN SPACE. THEY MAKE IT POSSIBLE TO DETERMINE THE MOISTURE CONTENT IN THE ATMOSPHERE, DETECTION OF ZONES OF PRECIPITATION, AND DISCRIMINATING THE ICE COVERED OCEAN SURFACE". "INVESTIGATIONS OF RECENT YEARS HAVE REVEALED THAT AEROSOLS, TINY PARTICLES OF BOTH TERRESTRIAL AND EXTRATERRESTRIAL ORIGIN, ARE VERY IMPORTANT. PHOTOGRAPHS AND SPECTRA OF THE TWILIGHT AUREOLE OF OUR PLANET OBTAINED BY SOVIET COSMONAUTS MADE IT IMPORTANT TO SOLVE IMPORTANT PROBLEMS IN STUDY OF THE VERTICAL DISTRIBUTION OF ATMOSPHERIC AEROSOLS". "A DISTINGUISHING CHARACTERISTIC OF OUR SCIENCE IS THAT TODAY INVESTIGATIONS HAVE A COMPLEX CHARACTER". "COSMONAUT YE. V. KHRUNOV OBTAINED INTERESTING RESULTS FROM OBSERVATIONS OF THE SOLAR AUREOLE WHICH HE MADE DURING FLIGHT ON THE SPACESHIP SOYUZ 5 USING A MANUAL SPECTOGRAPH.

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4/4 062 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AN0135244

ABSTRACT/EXTRACT--IMPORTANT GEOLOGICAL GEOGRAPHIC DATA WERE OBTAINED ON SOYUZ 7 BY COSMONAUT V. N. VOLKOV, WHO PHOTOGRAPHED DIFFERENT PARTS OF NATURAL PLANETARY FORMATIONS: STEEPE, FOREST AND OCEAN. THESE MATERIALS MAKE IT POSSIBLE TO SOLVE THE PROBLEM OF INVESTIGATING DIFFERENT TERRESTRIAL FORMATIONS FROM PHOTOGRAPHIC IMAGES OF THE SURFACE AND SPECTRA OBTAINED FROM SPACE. SOYUZ 7 FOR THE FIRST TIME PARTICIPATED IN A JOINT EXPERIMENT: SIMULTANEOUSLY WITH SURVEYS FROM SPACE TO AIRCRAFT LABORATORIES DID THE SAME WORK AT DIFFERENT ALTITUDES. A WIDE RANGE OF OPTICAL DATA WAS OBTAINED, MAKING IT POSSIBLE TO MAKE INVESTIGATIONS OF NATURAL FORMATIONS FROM SPACE AND IN PARTICULAR, TO TRACE THE EFFECT OF THE ATMOSPHERE ON THE FORMATION OF THE EARTH'S SURFACE". YESTERDAY EVENING THERE WAS A SHOWING OF THE SOVIET POPULAR SCIENCE DOCUMENTARY FILM "FOUR IN ORBIT" IN THE CONFERENCE HALL OF THE TAVRICHESKIY PALACE. THE SESSION PARTICIPANTS HEARD WITH GREAT INTEREST COMMENTARIES MADE BY COSMONAUTS YE. KHRUNOV AND V. VOLKOV. THEY TOLD OF HOW THE FIRST EXPERIMENTAL ORBITAL STATION WAS CREATED AND HOW SPACE INVESTIGATIONS WERE MADE WITH THE MANNED "SOYUZ" SHIPS.

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1/2 027

TITLE--MECHANISM OF THE ELECTRODEPOSITION OF A SILVER TUNGSTEN ALLOY FROM AN AMMONIUM SULFATE ELECTROLYTE -U-

AUTHOR-(02)-KUDRYAVTSEVA, I.D., SKALOZUBOV, M.F.

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CIRC ACCESSION NO--AP0127470

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ELECTRODEPOSITION OF THE ALLOY, THE CURRENT EFFICIENCY EXCEEDS 100PERCENT IF THE ASSUMPTION IS MADE THAT ONLY AG IS DEPOSITED. THIS EXCESS INCREASES WITH AN INCREASE IN W. FURTHERMORE, THE MICROHARDNESS OF THE DEPOSIT INCREASES WITH THE W CONTENT AND REACHES A MAX. AT SIMILAR TO 0.8 WT. PERCENT W. AT A CONST. CONCN. OF AG THERE IS A SEMILOGARITHMIC RELATION BETWEEN THE W CONTENT IN THE ELECTROLYTE AND IN THE ALLOY. ALSO, IN THE PRESENCE OF W THE POLARIZATIONA ARE HIGHER BY 40-300 MV THAN IN THE ELECTRODEPOSITION OF AG ALONE. INCLUSION OF W IN THE CATHODIC DEPOSIT IS POSSIBLE BY SEVERAL ROUTES. ONE OF THESE IN THE REDN. OF WO SUB4 PRIME2NEGATIVE ON THE CATHODE WHICH MOST LIKELY PROCEEDS ACCORDING TO: WO SUB4 PRIME2NEGATIVE PLUS 4H SUB2 O PLUS 6E YIELDS W PLUS 8OH PRIME NEGATIVE. ANOTHER WAY IS THE POSSIBLE DIRECT ADSORPTION OF WO SUB4 PRIME2NEGATIVE ON THE SURFACE OF AG. RESULTS OF CHEM. ANAL. FAVOR THE POSSIBILITY OF THE REACTION WO SUB4 PRIME2NEGATIVE PLUS 8AG PRIME POSITIVE PLUS 6E YIELDS 2 PLUS 4AG SUB2 O. FACILITY: NOVOCHERKASSK. POLITEKHN. INST., NOVOCHERKASSK, USSR.

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USSR

UDC 541.67:543.422.4:547.1'118

SHAGIDULLIN, R. R., BEL'SKIY, V. YE., ASHRAFULLINA, L. KH., KUDRYAVTSEVA, L. A., IVANOV, B. YE.

"Study of Dipole-Dipole Interaction of Phosphoryl Compounds with the Environment by the Method of Infrared Spectroscopy"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2502-2504

Abstract: A study was made of the nature of the variation of the valence phosphoryl oscillation frequency $\nu_{P=O}$ in different media for phosphoryl compounds differing significantly with respect to dipole moments. The interaction with the environment of organophosphorus ethers, amides, acid chlorides and trialkyl (aryl) phosphine oxides having a phosphoryl group takes place by the same mechanism as the linearity of the variation of the valence oscillation frequency of the P=O bond under the effect of the environment indicates. The interaction of the phosphoryl compounds with the environment is intensified with an increase in their dipole moments which can be caused by an increase in the polarity of the P=O bond. The capacity of the phosphoryl compounds for interaction with the environment depends on the intramolecular effects of the substitutions on the phosphorus determined by the Taft induction constants.

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USSR

UDC 532.5

IL'YASHUK, B. G., KUDRYAVTSEVA, K. A., LEYFEROV, V. A.

"Device for Studying Liquid Oscillations"

Tr. Fiz.-tekhn. in-t nizk. temperatur AN USSR (Works of the Physico-Technical Low-Temperature Institute of the Ukrainian SSR Academy of Sciences), 1970, vyp. 1, pp 265-272 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B359)

Translation: A device is described which creates reciprocal movement in the horizontal plane according to a sine law for a cavity filled with liquid. The cavity with the liquid is installed on a dolly which moves along guides and is driven by a crankgear with multilink breaking shaft. Movement along the guides using the crankgear permits high accuracy of reproduction of the sine law to be obtained, and application of the multilink breaking shaft permits the amplitude of movement of the dolly to be charged during movement. A special lock instantaneously halts the dolly at the end position. This offers the possibility of studying the damping of the movement of the liquid. The design of the cavities permits directional collapse of the liquid mass, which simulates pulsed application of a load. Oscillations of a liquid in a sphere with and without dampers are presented as an example.

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